
Preface

PUBLICATION DESIGNATION

COV ITRM Guideline 94-1

SUBJECT

Telecommuting

EFFECTIVE DATE

This Guideline is effective February 1, 1994

AUTHORITY

Code of Virginia, §2.1-563.31 (Powers and Duties of the Council on Information Management)

SCOPE

This guideline covers significant technical and administrative issues that may arise during the development and implementation of an agency telecommuting program.

PURPOSE

To assist State agencies in implementing a telecommuting program.

OBJECTIVE

To provide administrative and technical guidance on the purchase and use of information technology resources in support of telecommuting initiatives.

DEFINITION

Telecommuting is defined as working at home, or at an office close to home (satellite office), full or part-time, and replacing the trip from home to a traditional workplace with electronic communications. Work that is particularly suited to telecommuting includes word processing, writing, editing, client contact (marketing and sales), order processing, research, and engineering design and drafting.

GENERAL RESPONSIBILITIES

In accordance with the *Code of Virginia*, the following provisions apply:

The Council on Information Management (CIM)

Responsible for:

Directing the development and promulgation of policies, standards, and guidelines for managing information technology resources in the Commonwealth.

Advisory Committees

Responsible for:

Meeting, conferring with, and advising the Council in the development of the Commonwealth's policies, standards, and guidelines for managing information technology resources.

All State Agencies

Responsible for:

Cooperating with the Council in the performance of its powers and duties; and

Complying with the Council's policies, standards, and guidelines for managing information technology resources in the Commonwealth.

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SECTION 1: OVERVIEW OF TELECOMMUTING

A recent LINK Resources survey found almost a 20 percent increase in telecommuting from 1991 to 1992--from 5.5 million to 6.6 million workers of about 100 million, and there are no indications that the growth of telecommuting is slowing down.

Telecommuters do essentially the same work that they would be doing in a traditional office but are located either at their homes or at a nearby satellite office. Interconnectivity to the people and resources with which they must interact in order to do their jobs is achieved by applying technology that will be discussed in this guideline. A telecommuter employed by the state will typically telecommute one or more days a week, making office appearances on other days for such purposes as attending conferences or delivering reports and completed work.

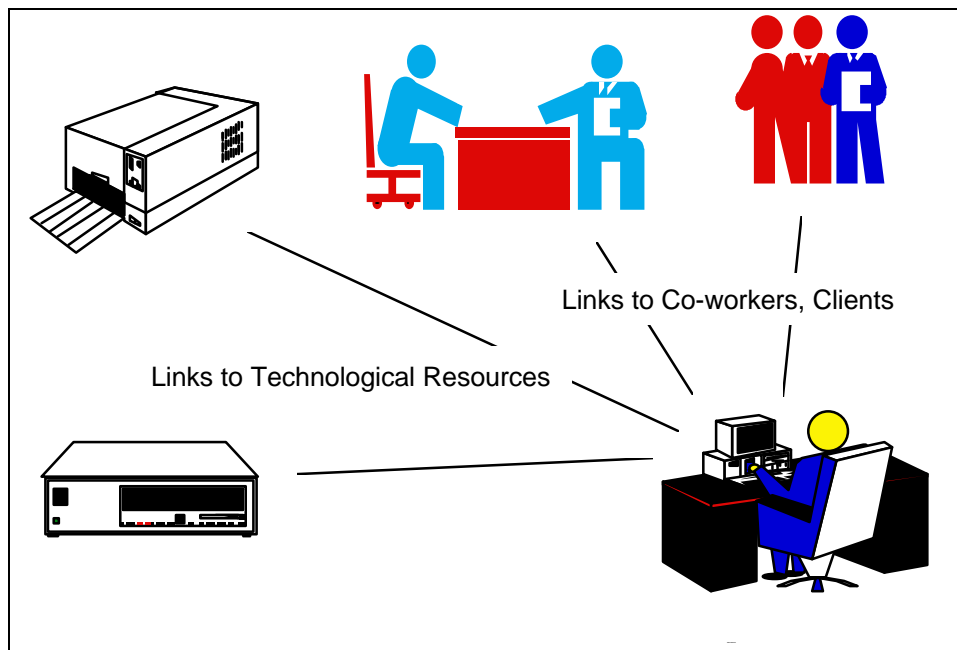
There is also the possibility of a telecommuting schedule involving all three types of work locations. The telecommuter could operate out of his or her home several days of the week for work, such as writing, not requiring expensive technology, go to the satellite office for use of technology not available at home such as fax, videoconferencing, or networking with high-power workstations, and appear at the main office at the end of the week to attend conferences or give briefings on work progress.

While operating out of the home remains, by far, the more popular way to telecommute, the practice of working at satellite offices is on the increase. Some private firms have been operating satellite offices for some time, and the federal government is planning several such facilities in the Washington, D.C. area. The federal satellite office program will be an expansion of the "Federal Flexiplace Demonstration Project" under the management of the General Services Administration (GSA) and the Office of Personnel Management (OPM). Two telecommuting sites are planned for Virginia, one in Winchester and one in Fredericksburg.

There are advantages to satellite offices, a significant one being the ease of sharing more expensive technological resources that may be needed, such as facsimiles, high-power workstations, and videoconferencing equipment. Satellite offices also help to preserve at least part of what may be the main benefit of a traditional workplace: direct, interpersonal interaction among co-workers and associates engaged in similar or related professional activity.

SECTION 2: EQUIPPING THE TELECOMMUTER

While many part-time and some full-time telecommuters may need only a telephone and a quiet place to work, others are accustomed to and need computers and other technologies. New technologies tie telecommuters more closely with the agency. With personal computers, computer networks, modems, answering machines, voice mail, conference calling, photocopiers, facsimile machines, and video conferencing, work can be done anywhere.



Technologies help telecommuters to get work done, to be easily accessible, and to transmit work back and forth to the agency. It has been noted that a basic telecommuting set-up with a microcomputer, modem, and telephone can cost two to three thousand dollars. A microcomputer, with its host of user friendly software, gives a telecommuter many of the central office comforts - flexible word processing and effective communication packages.

Calls from the outside to a telecommuter can be handled in a number of ways. Messages can be taken at the main office and the telecommuter can retrieve them on a regular basis, either by telephone or electronically. Calls can be rerouted automatically to the telecommuter. Answering machines and voice mail systems can be used effectively to receive messages when the telecommuter is away.

It is true that technologies are steadily moving toward the more flexible, the more portable, and the more affordable. New software innovations help people coordinate better with each other. High-tech transmission cables allow for voice, data, and video to run simultaneously, decreasing the number of telephone lines needed for telecommunicating. These improvements will help integrate part-time and full-time telecommuters into the workforce.

TECHNOLOGY REVIEW

The following technologies are positive indicators for telecommuting:

- A high proportion of workers using computers
- A computerized office network or electronic mail
- Take-home computers
- Voice mail
- A modern, flexible telephone system
- Computers with modems
- Other technologies such as fax machines and teleconferencing

The employee, supervisor, and/or others should determine work equipment and telecommunications needs. This process will be facilitated if the responsible agencies make themselves familiar with the latest available relevant technology regardless of whether the agency is currently utilizing it. This will allow, where possible, agencies to obtain equipment that may make the employee more productive and/or comfortable as well as facilitating the telecommuting experience. This will also be an opportunity for the agency to become updated on the availability of helpful technology, regardless of the work arrangement application. Minimum equipment needs, however, should be met. A poorly equipped telecommuter is not in the best interest of anyone.

A very expensive 'Cadillac' work station is not a necessity. Experience shows that successful programs can be run on a shoestring budget. For example:

- Through relocating the employee's existing equipment to the alternate worksite
- Through use of surplus equipment
- Through use of loaned or rotated equipment
- Through use of the employee's privately owned equipment

BASIC EQUIPMENT

Telephone

The most basic application of technology is the telephone. Not only is a telephone the only device needed for a minimal telecommuting capability, but it is all that is used in a large percentage of current telecommuting. By simply enabling the telecommuter to confer with his or her associates at the workplace as well as other locations and, likewise,

by enabling these associates to reach the telecommuter, telephone service provides a significant amount of telecommuting functionality.

Additional features that are particularly applicable to telecommuting include the following:

- *Voice Mail.* This feature allows callers to leave a message if the telecommuter is temporarily unavailable or the line is busy, and allows the telecommuter to retrieve, return, forward and store calls. Voice mail offers a significant advantage if it is set up to operate from the telecommuter's regular office phone number--external callers cannot tell that the telecommuter is not in the office.
- *Call Queuing.* The telecommuter can manage several simultaneous incoming calls.
- *Call Forwarding.* Calls to the telecommuter's office can be automatically forwarded to his or her work site and, if not answered, can be picked up by any secretary serving that work location. Calls can also be temporarily forwarded to a new location if the telecommuter has to make a "field trip" during the day.
- *Callback.* Incoming calls from the workplace are automatically returned when the telecommuter pushes a button or enters a code.

Microcomputers and Modems

Most full-time telecommuters are already using microcomputers. Most office local area networks will support remote access via dial-up modem. With this capability, the telecommuter has access to all of the functions of the network. He can access electronic mail, share files with co-workers, and print files. For this type of interactive connectivity, a 9600 kbps or 14.4 kbps modem should be used.

Fax Modems

For a small incremental cost, a data and fax modem can be purchased. In the data mode, the modem can be used to access remote networks, share files and access electronic mail functions. In the fax mode, the telecommuter uses the same modem to send and receive faxes by computer.

To send a fax, the telecommuter prepares the document using a word processing package or other office software; the computer then converts the document to an image and the modem faxes it to the desired location.

To receive a fax, the modem answers, receives the fax and stores it on the computer's hard disk. The telecommuter may then view the fax on the screen, forward or resend the fax to a co-worker, or print it out.

Voice Mail Modem

The voice mail option, available on newer modems, is a feature that may be useful to the telecommuter. With this option, the computer and modem act as telephone answering machine. A significant advantage is that it allows the telecommuter to use the same modem and telephone line for network connectivity, faxes, and voice mail, and reduces the ongoing cost of telephone services.

VIDEOCONFERENCING

Software and hardware are currently available that allow computer-to-computer videoconferencing. A video camera is mounted on or near the microcomputer, and the picture is received in a window on the computer screen. However, the use of micro-to-micro videoconferencing in telecommuting is limited by the current lack of high speed telephone service to the home. This may change in the next few years. In the meantime, with new compression techniques, it may be possible to transmit the entire conferencing channel, both voice and video, through a single telephone line using a 14.4 kbps modem.

SECTION 3: MANAGING TECHNOLOGY RESOURCES

1. A formal Telecommuting Agreement should be completed by the employee and the employee's supervisor, and subject to management/agency approval. This agreement should include:
 - the work schedule; the location of the alternate work site
 - a brief description of the work activities involved
 - communications procedures to be employed
 - the equipment and/or supplies (including computer hardware/software configurations) that will be used and who will provide them; and
 - any applicable data security procedures
2. For official state business only, state agencies may use appropriated funds to pay for telephone installation and basic service in private residences. Agencies may also pay for the use of the employee's personal phone for business related long-distance telephone calls.
3. All leased lines provided to the telecommuter in accomplishing his/her assignments will be the responsibility of the agency.
4. Each agency must establish its own policy on purchase and installation of equipment. Some agencies may agree to purchase or install equipment, while others, due to budget constraints or other management reasons, may choose not to. Telecommuting equipment, e.g. microcomputers, modems, printers, and facsimile machines, may be purchased by the agency for the telecommuter off the state contract. Alternatively, the employee may use his/her own equipment.
5. State-owned property, including computers and other telecommunications equipment, may be removed from the agency and used by employees in their private residences provided the equipment is used only by authorized persons for legitimate state purposes. The telecommuter is responsible for the proper use of all state provided equipment and supplies. All equipment and supplies, including hardware, software, and data, furnished to telecommuters by an agency remain the property of the agency.
6. Maintenance, repair, relocation and replacement of state-owned equipment issued to telecommuters will be the responsibility of the agency. Employees are responsible for the proper operation of the agency equipment assigned to them.
7. Unless otherwise agreed to in writing by agency management prior to any loss, damage or wear, the state does not assume liability for loss, damage or wear of employee owned equipment or supplies used while telecommuting. If the

equipment belongs to the telecommuter, maintenance and repair of such equipment is the responsibility of the telecommuter.

8. Telecommuters using state provided computer software shall adhere to the manufacturer's licensing agreements, including the prohibition against unauthorized duplication. Only hardware/software configurations procured by the state agency and authorized by the agency should be installed. Agencies may elect not to permit employees to add non-state government owned or unauthorized hardware or software, such as bulletin board software to the home work station.
9. Agencies must ensure that the designated work space or work station of the employee has adequate physical or environmental security measures in place to protect the equipment from being accessed by unauthorized individuals. This can be accomplished by having the employee specifically identify the proposed work area and certify in writing the security measures that will be used. Example of measures that may be acceptable, depending upon the information, include denying children access to the work area, or securing the work area by locking it when it is not in use.
10. To protect confidentiality and guard against data contamination, telecommuters shall follow agency approved data security procedures at their alternate work site.
11. Dial-up telecommunication access to state computers presents special security concerns. A combination of physical controls, unique user identifiers, passwords, terminal identifiers, access control software, and strict adherence to security procedures is required to protect the information from unauthorized access. Ensure that personal ID's, passwords, access codes, etc., that are assigned are accounted for and maintained properly, in accordance with COV ITRM Standard 91-1, *Information Security Standards for Security Administration, Personnel Security, Physical Security, and Information Security*.

SECTION 4: TELECOMMUTING ASSISTANCE

VIRGINIA'S GUIDE TO TELECOMMUTING

The Virginia Department of Transportation has issued a *Virginia Guide to Telecommuting* which is a comprehensive instruction manual for use in creating a telecommuting program. The guide contains information collected from telecommuting managers and telecommuters themselves, providing a first hand look at what has worked and what has not for businesses across the Commonwealth.

REFERENCES

Work A Little Magic: How To Start Your Own Telecommuting Program, The Governor's Telework/Telecommuting Advisory Task Force, Commonwealth of Virginia.

Puget Sound Telecommuting Demonstration Executive Summary , Final Focus Group Report: Puget Sound Telecommuting Demonstration, Washington State Energy Office, Revised November 1992.

The Telecommunications Review, The Telecommunications Specialty Group (1993), The MITRE Corporation, McLean, VA.

1992 Flexiplace Project Operating Plan, U.S. Department of Justice Worklife Program.